DPS Telecom

"Your Partners In Network Alarm Monitoring"

VoIP Bridge Server Version 2

USER MANUAL

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Revision History

August 17, 2015	Initial Release.

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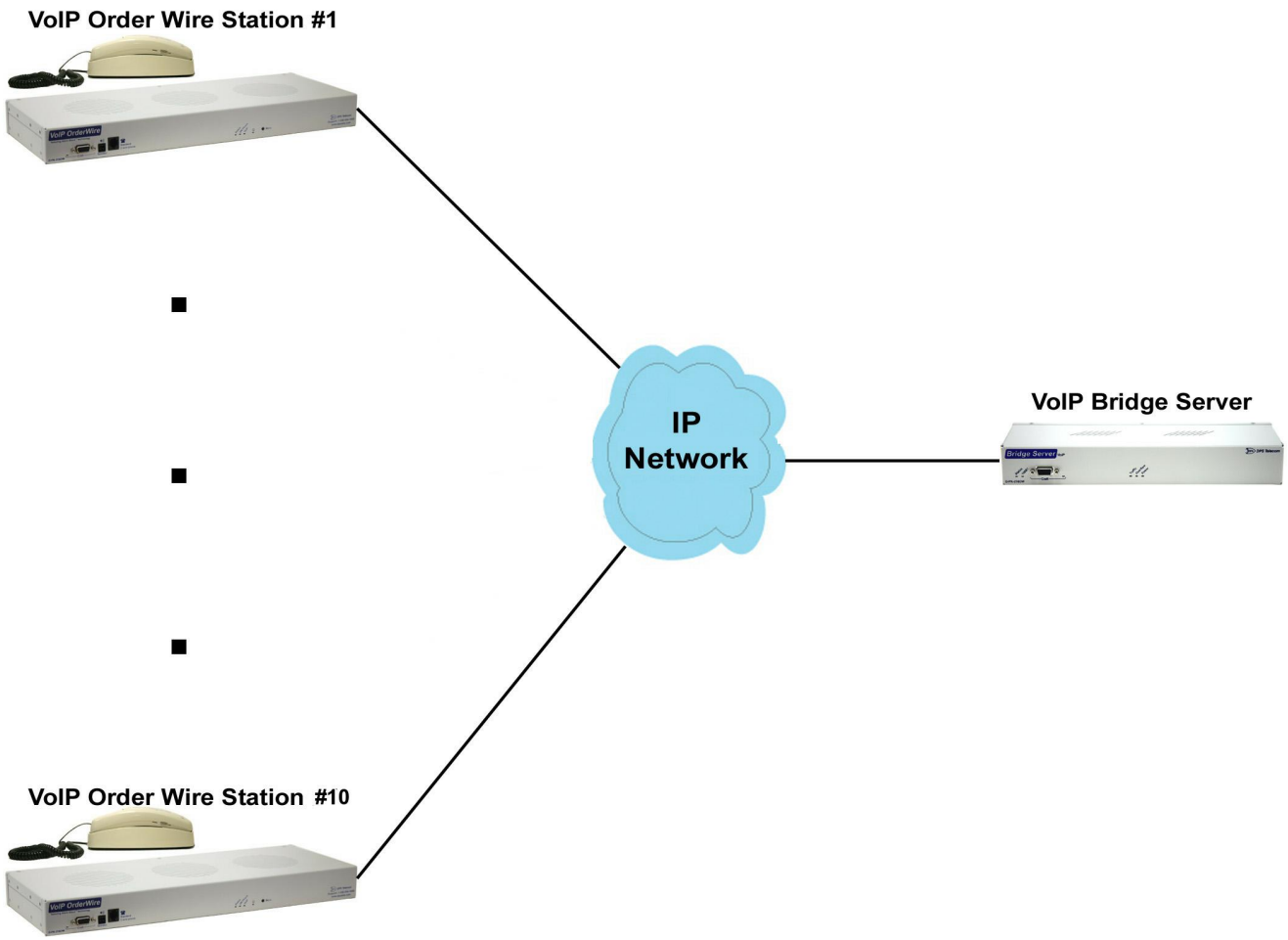
1 VoIP Bridge Server Overview

Your VoIP Conference Bridging Solution

The VoIP Order Wire system from DPS Telecom is an effective way for technicians to communicate between sites. Sometimes, however, you need to **host a "conference call" across multiple VoIP stations.**

You need a simple device that will support this "conference call" functionality without needing to broadcast packets across your network.

Meet the VoIP Bridge Server
This small device will bridge up to 10 VoIP Order Wire stations into a single conference call. Voice data from individual stations is sent only to other stations connected to the bridge, rather than being broadcast across the network. VoIP users simply follow the voice prompt at their station to dial into the VoIP Bridge Server and join any other connected users on a conference call. Whenever a user enters or leaves the call, all other connected users will hear an automated announcement.



Up to 10 VoIP Order Wire stations may connect via IP to a single VoIP Bridge Server in order to hold a conference call.

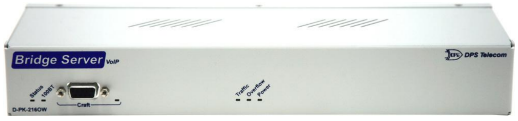
Note: Firmware version 2.0A.0026 or higher could support up to 10 VoIP stations.

2 Specifications

Protocols:	Telnet, RTP, HTTP
Dimensions:	1.720" H x 11.5" W x 4" D
Weight:	1.5 lbs.
Mounting:	19" rack or wall mount
Power Input:	-48VDC (-36 to -72 VDC)
	+24 VDC via 110VAC wall transformer (12 V to 30 VDC, Optional)
	-24VDC (Optional)
Current Draw:	100 mA @ -24VDC
	50mA @ -48VDC
Fuse:	Resettable Fuse (Internal), if +24V Power Input
	1/2 Amp GMT Fuse, if -48V or -24V Power Input
Interfaces:	1 RJ45 10/100BaseT Ethernet port
	1 DB9 front-panel craft port
Visual Interface:	6 Front Panel LEDs
	4 Back Panel LEDs
Operating Temperature:	32°–140° F (0°–60° C)
Operating Humidity:	0%–95% non-condensing
RoHS:	5/6

3 Shipping List

Please make sure all of the following items are included with your VoIP Bridge Server. If parts are missing, or if you ever need to order new parts, please refer to the part numbers listed and call DPS Telecom at **1-800-622-3314**.



VoIP Bridge Server
D-PK-NG216

VoIP Bridge Server User Manual
D-UM-216OW

x 2

½-Amp GMT Fuses
(For -48V units only)
2-741-00500-00

Lg. Power Connector (Main Pwr)
(For -48V units only)
2-820-00862-02

6 ft. DB9M-DB9F Download Cable
D-PR-045-10A-04

14 ft. Ethernet Cable
D-PR-923-10A-14

19" Rack Ear
D-CS-325-10A-00

x 2

Wall Mount Bracket
D-CS-532-10A-05

x 4

Four 3/8" Ear Screws
1-000-60375-05

x 2

Two Metric Rack Screws
2-0008075-03

x 2

Two Standard Rack Screws

Pads

1-100-12500-06 **2-015-00030-00**

3.1 Optional Shipping Items

Small WAGO connector
2-802-01020-00

Long 19" Rack Ear
(D-CS-325-10A-10)

4 Installation

4.1 Tools Needed

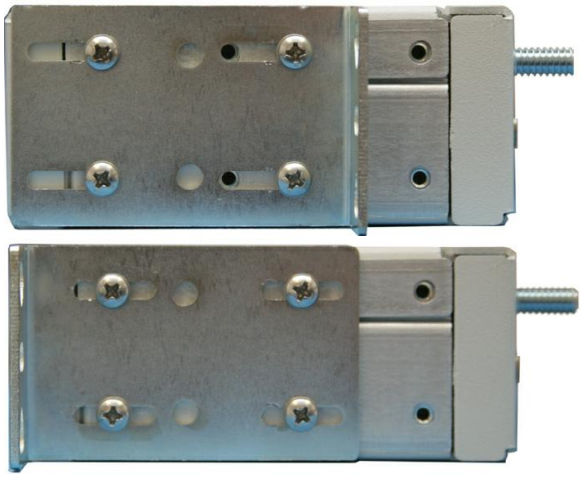
To install the VoIP Bridge Server, you'll need the following tools:

Phillips No. 2 Screwdriver

Small Standard No. 2 Screwdriver

PC with terminal emulator, such as HyperTerminal

4.2 Mounting



The dimensions (in inches) of the supplied 19" rack ears.

The VoIP Bridge Server can be flush- or rear-mounted

Rack-Mounting Instructions

The compact VoIP Bridge Server occupies only half the width of a standard rack unit. Unless you ordered a second "long" ear (not shown), only one rack ear is supplied with the VoIP Bridge Server. The single rack ear can be mounted on the left or right side of the unit. The VoIP Bridge Server mounts in a 19" rack, and can be mounted on the right or left, in the flush-mount or rear mount locations, as shown in the above image.

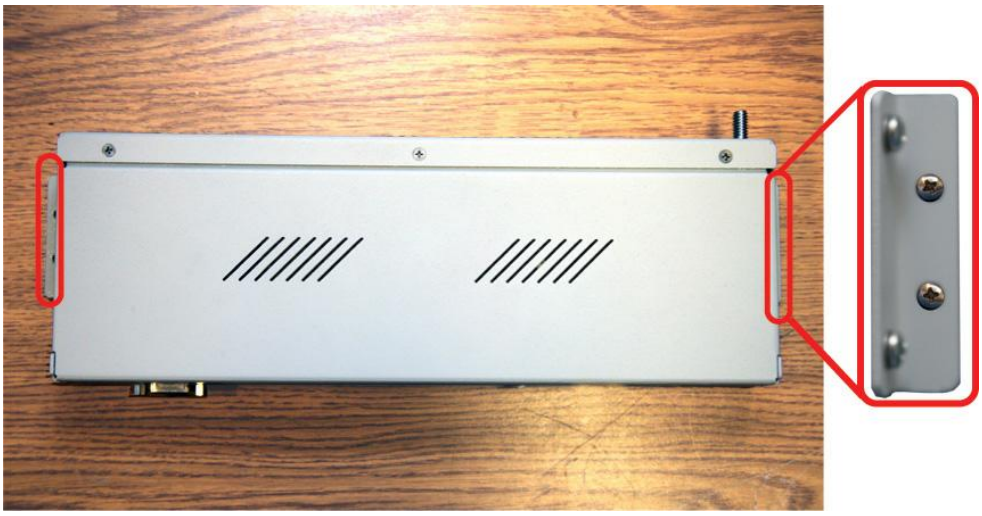
As shown below, the VoIP Bridge Server mounts onto one side of a 19" rack using the provided rack ear for either size. The ear can be rotated 180 degrees during installation to adjust the position of the unit relative to the rack. Attach the appropriate ear to the rack in the desired location.

The VoIP Bridge Server also mounts on your 19" equipment racks.

Wall-Mounting Instructions

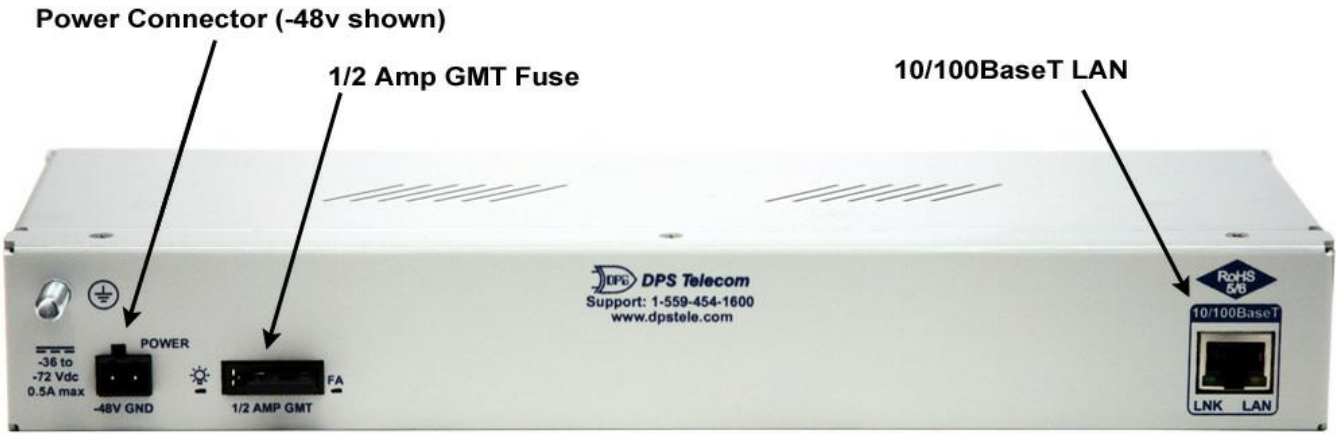
The rack ears can be rotated 90° for wall mounting (shown below) or 180º for other mounting options (not shown).

1. Depending on your order options, you will attach wall-mount flanges to both sides of the unit.
   a. Fasten the flange to the VoIP Bridge Server with two of the 6/32 screws provided. (**NOTE**: Screws longer than those provided may contact the internal components of the unit, adversely affecting its normal operation.)
2. After flanges have been attached to the VoIP Bridge Server, mount the unit in the desired location with two screws through each flange.



Use the included wall mount bracket to mount the VoIP Bridge Server vertically on the wall.

5 VoIP Bridge Server Back Panel



VoIP Bridge Server back panel connections

5.1 Power Connection (+12 or +24VDC Build Option)

The VoIP Bridge Server is powered by a screw-on plug, located on the right side of the back panel.

Close-up view of VoIP Bridge Server's screw-on power connector.

Before you connect a power supply to the VoIP Bridge Server:

1. Always use safe power practices when making power connections. Be sure to remove fuses from the back of the VoIP Bridge Server before making your power connections.
2. Use the grounding lug to connect the unit to earth ground. The grounding lug is next to the symbol ⏚. Insert the eyelet of the earth ground cable between the two bolts on the grounding lug (Ground cable not included.)
3. Plug in the power connector to the rear panel of the VoIP Bridge Server. Twist the collar of the plug to lock in place.
4. Plug in the wall transformer to a power outlet. The power LED should be lit green. To confirm that power is correctly connected, the front panel LEDs will flash RED and GREEN, indicating that the firmware is booting up.

5.

5.2 Power Connection (-48 or -24VDC Build Option)

The VoIP Bridge Server can also be built with a single screw terminal barrier plug or WAGO power connector.

Back panel power options

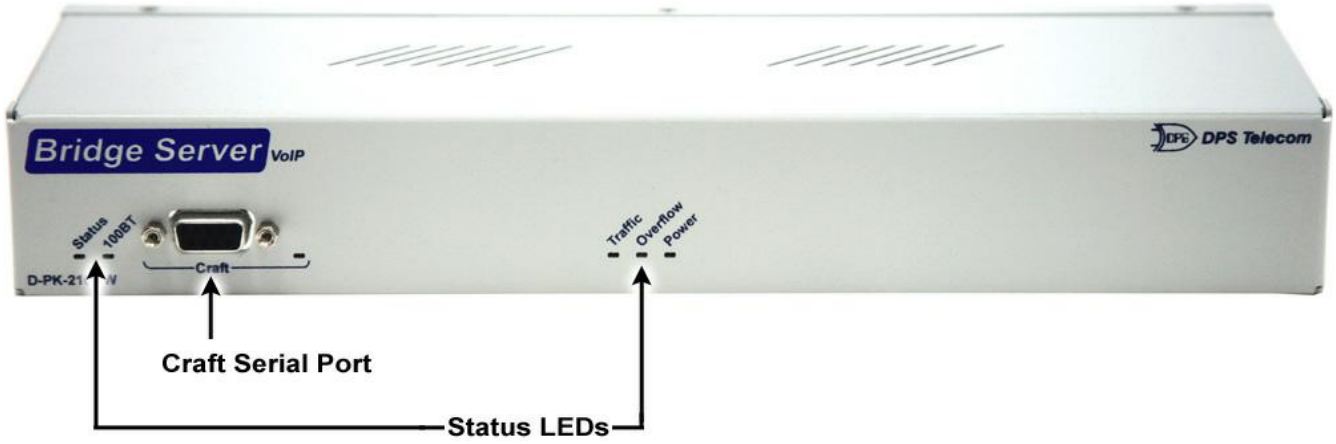
To connect the VoIP Bridge Server to a power supply, follow these steps:

1. Always use safe power practices when making power connections. Be sure to remove fuses from the fuse distribution panel, as well as the back of the VoIP Bridge Server, before making your power connections.
2. Use the grounding lug to connect the unit to earth ground. The grounding lug is next to the symbol ⏚. Insert the eyelet of the earth ground cable between the two bolts on the grounding lug (Ground cable not included).
3. Insert a battery ground into the power connector plug's right terminal and tighten the screw; then insert a battery line to the plug's left terminal and tighten its screw.
4. Insert a fuse into the fuse distribution panel and measure voltage. The voltmeter should read between –40 and –70VDC (for -48VDC build option) or -18 and -36VDC (-24VDC build option).
5. The power plug can be inserted into the power connector only one way to ensure the correct polarity. Note that the negative voltage terminal is on the left and the GND terminal is on the right.
6. Insert fuse into the fuse slot. The power LED should be lit green. To confirm that power is correctly connected, the front panel LEDs will flash RED and GREEN, indicating that the firmware is booting up.

5.3 LAN Connection

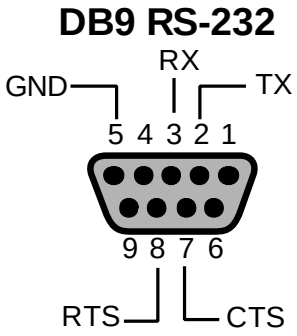
To connect the VoIP Bridge Server to the LAN, insert a standard RJ45 Ethernet cable into the 10/100BaseT Ethernet port on the back of the unit. If the LAN connection is OK, the LNK LED will light **SOLID GREEN**.

6 VoIP Bridge Server Front Panel



VoIP Bridge Server Front panel connections and LEDs

6.1 Craft Port



Pin #	Signal	Description
1		Not connected
2	**TX**	**Transmit data**
3	**RX**	**Recieve Data**
4		Not connected
5	**GND**	**Ground**
6		Not connected
7	**CTS**	**Clear to send**
8	**RTS**	**Request to send**
9		Not connected

VoIP Bridge Server Front panel connections and LEDs

Use the front panel craft port to connect the VoIP Bridge Server to a PC for onsite unit configuration. To use the craft port, connect the included DB9 download cable from your PC's COM port to the craft port. This is a standard DB9 to DB9. A pinout is shown above for reference.

7 Front and Back Panel LEDs

VoIP Bridge Server LEDs

Front Panel LED Descriptions

LED	Status	Description
Status	Flashing Green	Application is running
	Flashing Red	Boot Loader is running.
100BT	Solid Green	100 Mb/s
	Off	10 Mb/s
Craft	Flashing Red	Receiving data via craft port
	Flashing Green	Transmitting data via craft port
Traffic	Flashing Red	Receiving data via LAN
	Flashing Green	Transmitting data via LAN
Overflow	Flashing Red	More traffic than Bridge Server can handle
	Off	Traffic is within acceptable limits
Power	Solid Green	Power supply OK
	Off	No voltage or leads reversed

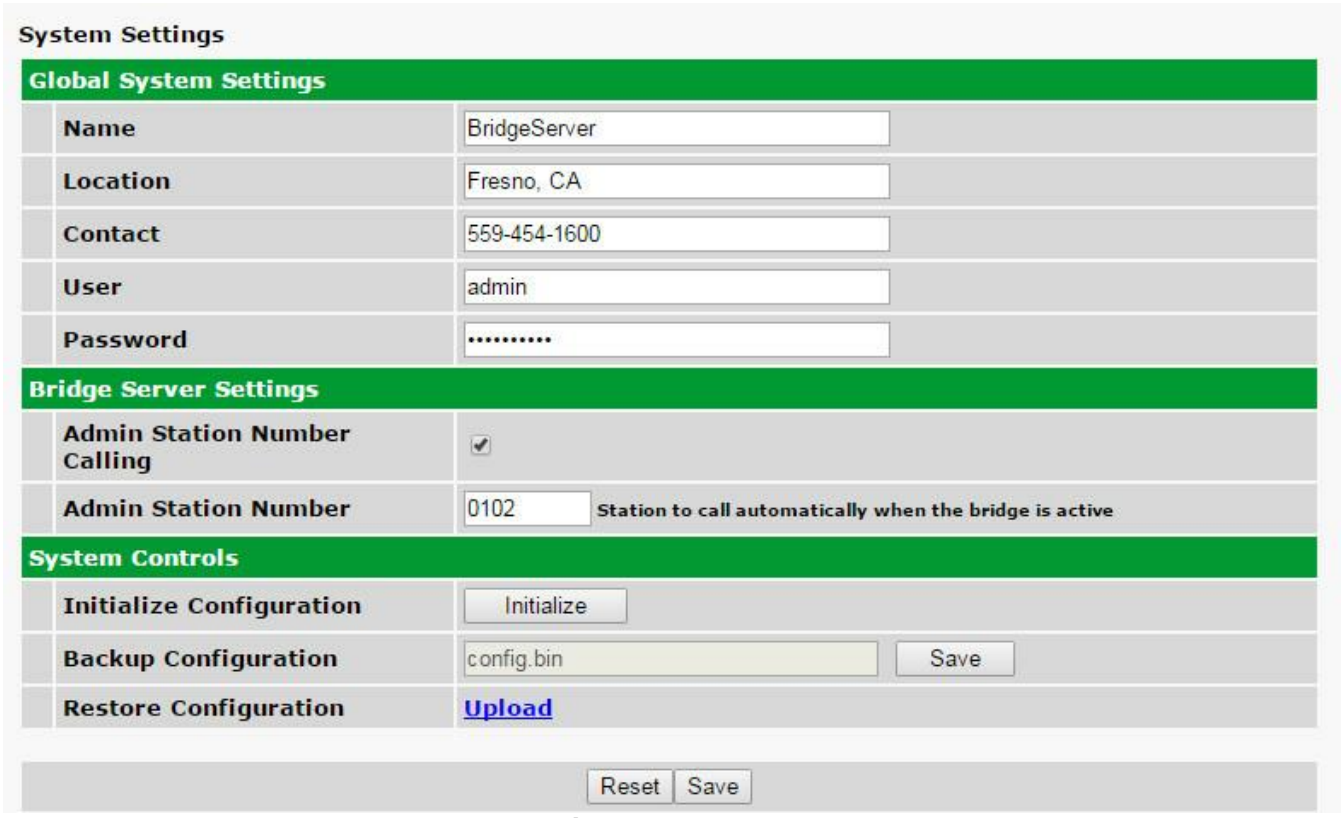
Back Panel LED Descriptions

LED	Status	Description
PWR	Solid Green	Power supply OK
	Off	No voltage leads reversed
FA	Solid Red	Fuse failure ("FA" = "Fuse Alarm")
	Off	Fuse functioning normally
LNK	Solid Green	Ethernet link detected
LAN	Flashing Green	Traffic activity over LAN

Back Panel LED Descriptions

8 Edit Menu Field Descriptions

8.1 Edit System

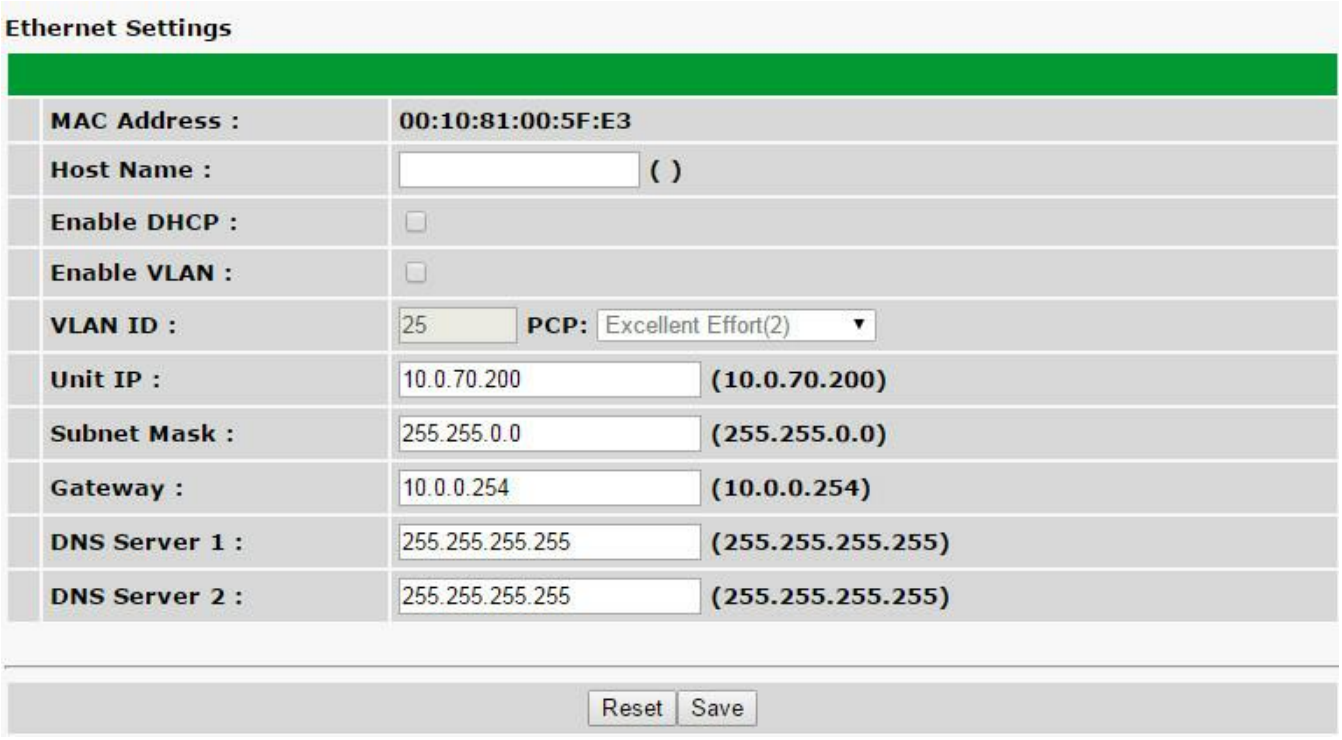


Edit > System Settings

Global System Settings	
Name	A name for this Bridge Server. (Optional field)
Location	The location of this Bridge Server. (Optional field)
Contact	Contact telephone number for the person responsible for this Bridge Server. (Optional field)
User	Used to change the username for logging into the unit.
Password	Used to change the password for logging into the unit (case-sensitive).

Bridge Server Settings	
Admin Station Number Calling	Check to enable automatic calling to admin station.
Admin Station Number	The station number called when a non-admin station calls into the BridgeServer. Admin Station Calling must be checked.
System Controls	
Initialized Configuration	Used to restore all factory default settings. Do not initialize the non-volatile RAM(NVRAM) unless you want to re-enter all of your configuration settings again.
Upgrade Firmware	Clickable link that takes you to the Firmware Load screen, where you'll browse to the downloaded firmware update saved on your PC.

8.2 Edit Ethernet



Edit > Ethernet Settings

Ethernet Settings	
Unit MAC	Hardware address of the Bridge Server. (Not editable - For reference only.)
Host Name	Used only for web browsing. Example: If you don't want to remember this Bridge Server's IP address, you can type in a name is this field, such as "MyRTU". Once you save and reboot the unit, you can now browse to it locally by simply typing in "MyRTU" in the address bar. (no "http://" needed).
Enable DHCP	Used to turn on Dynamic Host Connection Protocol. NOT recommended, because the unit is assigned an IP address from your DHCP server. The IP you've already assigned to the unit becomes inactive. Using DHCP means the unit will NOT operate in a T/Mon environment.
Enable VLAN	Used to turn on Virtual LAN. Uncheck to disable VLAN.
VLAN ID	The user-defined ID that represents your distinct broadcast domain. This number can range from 1 - 4,094.
PCP	PCP is the Priority Code Point. Values listed in parentheses are the priority for each

	class; 0 represents the lowest priority, 7 is the highest. VLAN PCP is placed on 2 by default.
Unit IP	IP address of the Bridge Server.
Subnet Mask	A road sign to the Bridge Server, telling it whether your packets should stay on your local network or be forwarded somewhere else on a wide-area network.
Gateway	An important parameter if you are connected to a wide-area network. It tells the Bridge Server which machine is the gateway out of your local network. Set to 255.255.255.255 if not using. Contact your network administrator for this info.
DNS Server 1	Primary IP address of the domain name server. Set to 255.255.255.255 if not using.
DNS Server 2	Secondary IP address of the domain name server. Set to 255.255.255.255 is not using.

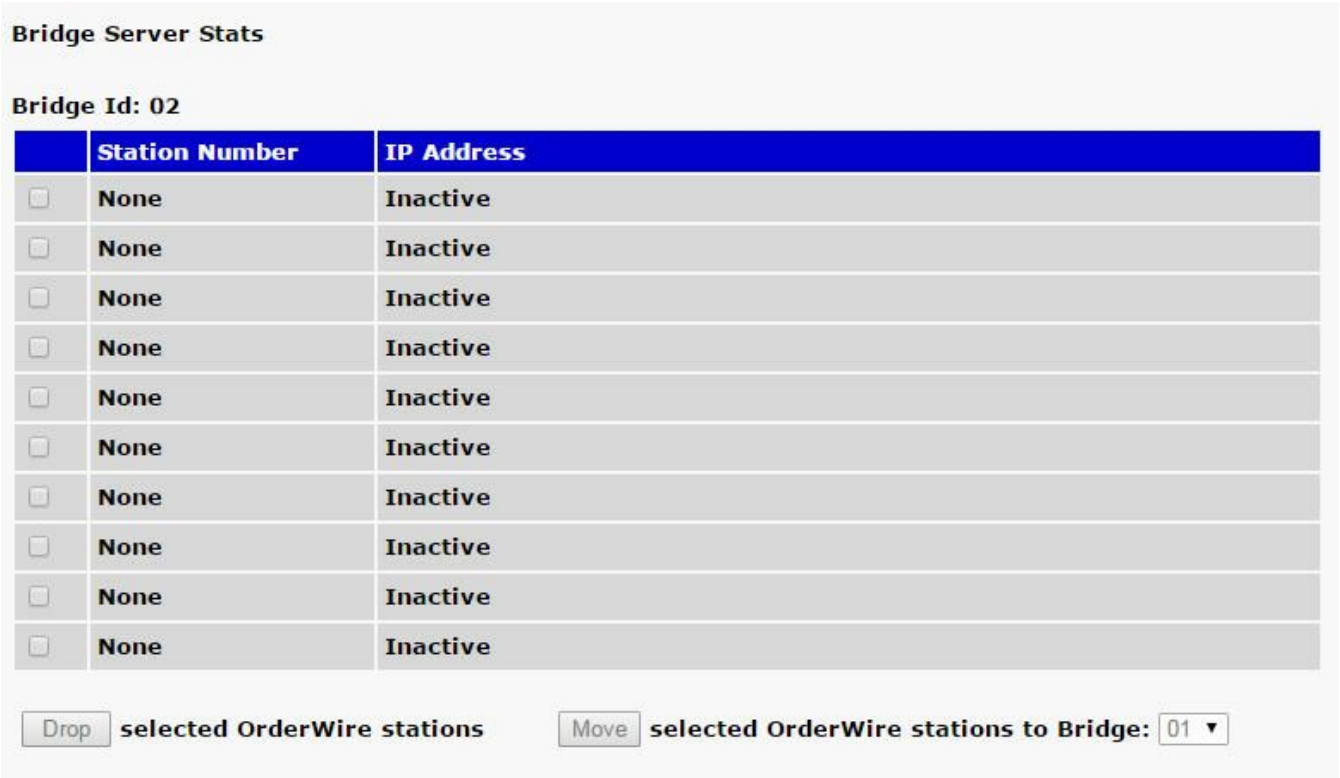
8.3 Reboot

Click on the Reboot link from the Edit menu will reboot the Bridge after writing all changes to NVRAM.

The Edit > Reboot confirmation popup

9 Monitoring via the Web Browser

9.1 Bridge Server



Monitor > Bridge Server

Bridge Server	
Bridge ID	The ID of this Bridge Server.
Station Number	Station ID's currently active in the bridge.
IP Address	IP address of the stations currently active in the bridge.
Drop	Check the box next to a station and select Drop to remove the station from the bridge.
Move	Check the box next to a station and input a destination Bridge ID. Select Move to move the station to that bridge.

10 How to Set Up the VoIP Bridge Server

The following steps are required in order to setup the VoIP Bridge Server and make your first conference call:

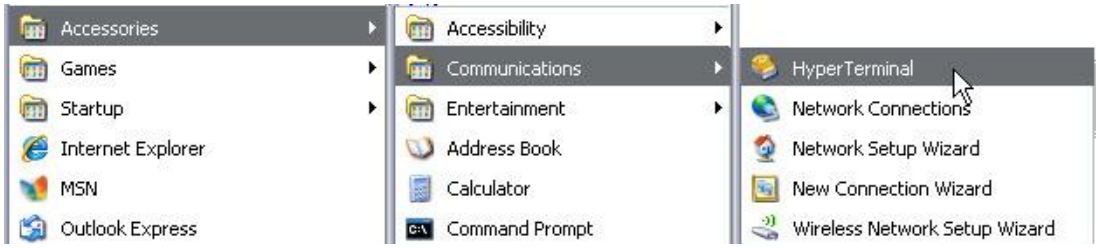
1. **Set the VoIP Bridge Server's IP Address** (using the TTY interface).
2. **Add the VoIP Bridge Server to your VoIP Order Wire configuration** using the "Orderwire Config" software.
3. Follow the voice menu prompts on 1 or more VoIP Order Wire stations to **connect to the VoIP Bridge Server** and begin a conference call.

10.1 Set Bridge Server IP via Craft Port (using TTY Interface)

Before you may use the VoIP Bridge Server to make conference calls with other VoIP Order Wire stations, you must first assign it an IP address, a subnet mask, and a default gateway. This provisioning step is performed within the TTY interface.

1. To connect to the VoIP Bridge Server for IP address provisioning, use a physical cable connection between your PC's COM port and the unit's craft port. **Note:** You must be connected via craft port or Telnet to use the TTY interface. Make sure you are using the straight through (1 to 1) Male to Female DB9-DB9 download cable provided with your VoIP Bridge Server to make a craft port connection. We'll be using HyperTerminal to connect to the unit in the following example - however, most terminal-emulating programs should work.

To access HyperTerminal using Windows:
2. Click on the **Start** menu **>** select **Programs** > **Accessories** > **Communications** > **HyperTerminal.**

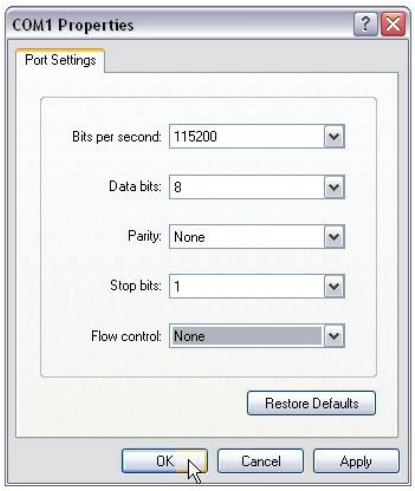


3. At the Connection Description screen, enter a name for this connection. You may also select an icon. The name and icon do not affect your ability to connect to the unit.

4. At the Connect To screen, select Com port you'll be using from the drop down and click OK. (COM1 is the most commonly used.)

5. Select the following COM port options:
   - Bits per second: 9600
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow control: **None**

   Once connected, you will see a blank, white HyperTerminal screen. Press Enter to activate the configuration menu.

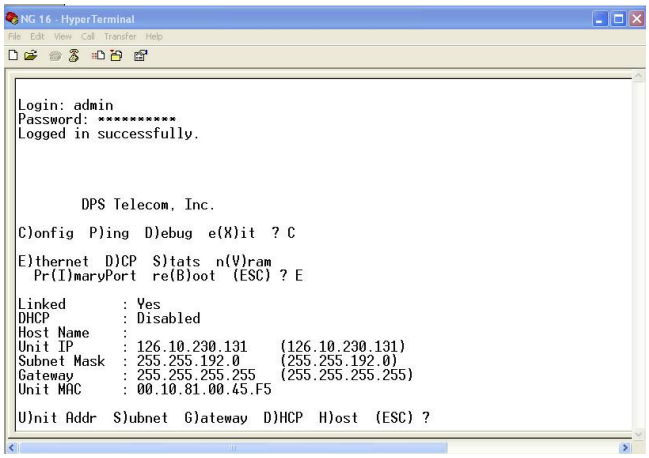


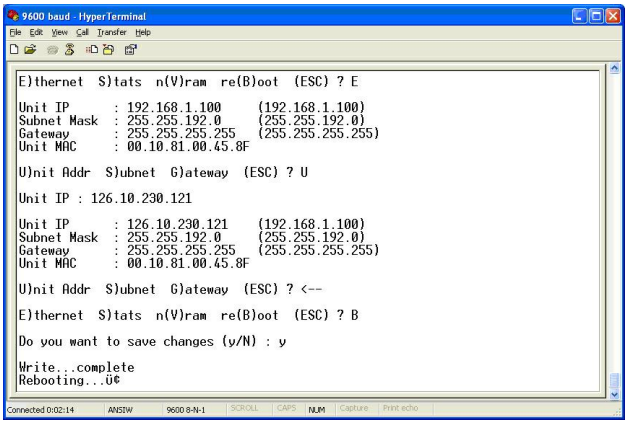
6. When prompted, enter the default user name **admin** and password **dpstelecom**. NOTE**:** If you don't receive a prompt for your user name and password, check the Com port you are using on your PC and make sure you are using the cable provided.

Additional cables can be ordered from DPS Telecom: *Part number* D-PR-045-10A-04

7. The VoIP Bridge Server's main main menu will appear. Type C for C)onfig, then E for E)thernet. Configure the unit's IP address, subnet mask, and default gateway.

8. ESC to the main menu. When asked if you'd like to save your changes, type Y for Y)es. Reboot the VoIP Bridge Server to save its new configuration.


NG 16 - HyperTerminal
File Edit View Call Transfer Help
Login: admin
Password: **********
Logged in successfully.
DPS Telecom, Inc.
C)onfig P)ing D)ebug e(X)it ? C
E)thernet D)CP S)tats n(V)ram
Pr(I)maryPort re(B)oot (ESC) ? E
Linked : Yes
DHCP : Disabled
Host Name :
Unit IP : 126.10.230.131 (126.10.230.131)
Subnet Mask : 255.255.192.0 (255.255.192.0)
Gateway : 255.255.255.255 (255.255.255.255)
Unit MAC : 00.10.81.00.45.F5
U)nit Addr S)ubnet G)ateway D)HCP H)ost (ESC) ?


9600 baud - HyperTerminal
File Edit View Call Transfer Help
E)thernet S)tats n(V)ram re(B)oot (ESC) ? E
Unit IP : 192.168.1.100 (192.168.1.100)
Subnet Mask : 255.255.192.0 (255.255.192.0)
Gateway : 255.255.255.255 (255.255.255.255)
Unit MAC : 00.10.81.00.45.8F
U)nit Addr S)ubnet G)ateway (ESC) ? U
Unit IP : 126.10.230.121
Unit IP : 126.10.230.121 (192.168.1.100)
Subnet Mask : 255.255.192.0 (255.255.192.0)
Gateway : 255.255.255.255 (255.255.255.255)
Unit MAC : 00.10.81.00.45.8F
U)nit Addr S)ubnet G)ateway (ESC) ? <--
E)thernet S)tats n(V)ram re(B)oot (ESC) ? B
Do you want to save changes (y/N) : y
Write...complete
Rebooting...ü¢
Connected 0:02:14 ANSIW 9600 8-N-1 SCROLL CAPS NUM Capture Print echo

You have successfully assigned an IP address to the VoIP Bridge Server. This is the only configuration step required within the VoIP Bridge Serverself. Next, you will need to provision your VoIP Order Wire devices with the IP address of this VoIP Bridge Server.

NOTE: If you changed your computer's IP earlier in order to connect to the VoIP Bridge Server, be sure to change the IP of your computer back to one that operates on your network.

10.2 Add the Bridge Server to your Order Wire Configuration

To simplify the process of dialing into a conference call, VoIP Bridge Servers must be pre-databased in the configuration of any VoIP Order Wire station that will connect to that VoIP Bridge Server (in most cases, all stations will be updated). **This process allows fast 2-digit dialing to reach a Bridge Server,** rather than the cumbersome process of dialing a full IP address with a phone keypad.

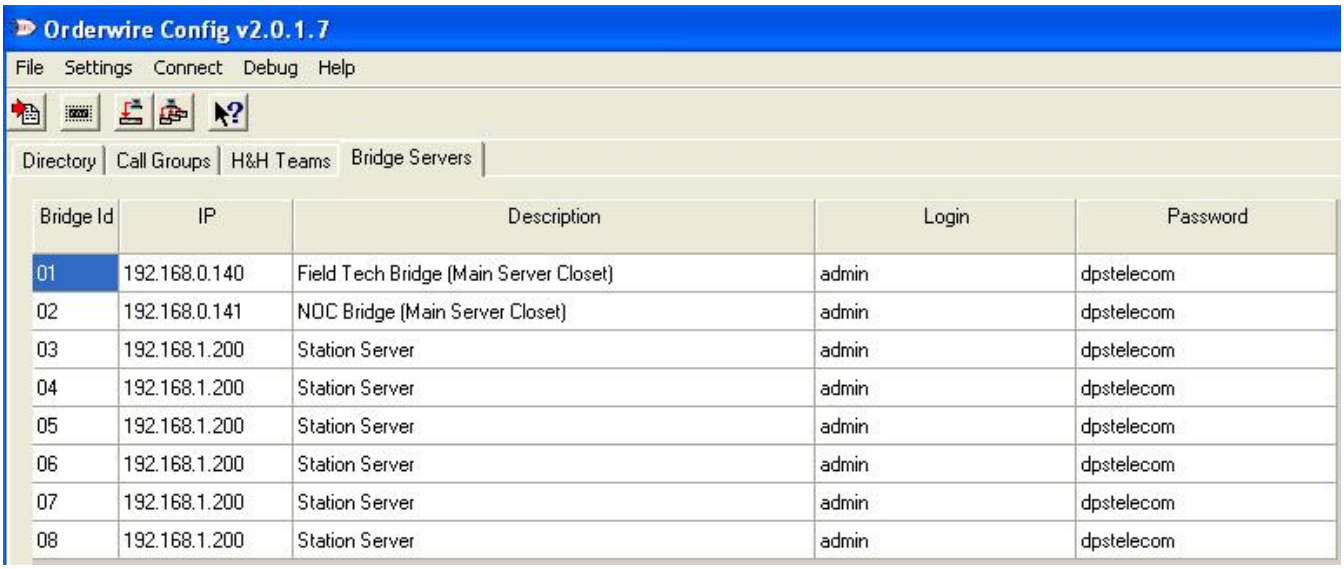
NOTE: These instructions describe only the configuration of the "Bridge Servers" tab. The other tabs, especially "Directory", must also be configured as part of a new VoIP deployment. If no Order Wire stations have been listed in the "Directory" tab, the "Write to all devices" step at the end of this section will have no effect. Refer to the Help file contained within Orderwire Config for information about configuring the other software tabs.

1. To add Bridge Servers into your Order Wire station configuration, **launch the "Orderwire Config" application** that was packaged with your VoIP Order Wire stations. If you do not have this software, it is available as a free download at: http://www.dpstele.com/mydps/

2. Next, you must **add a new entry in the "Bridge Servers" tab** for your new VoIP Bridge Server. If your version of the Orderwire Config software does not have this tab, you should download the latest version at http://www.dpstele.com/mydps/

As shown in the example below, **enter the following information for your VoIP Bridge Server:**

- **A two-digit "Conf. Id" number** (01-08). This number will be dialed from a VoIP Order Wire station to reach the Bridge Server. (This column is not editable.)
- **The "IP" address of the Bridge Server** that you defined earlier.
- **A "Description" that will serve as a helpful reminder** for you. In the example below, the Description field has been used to store the purpose and location of the Bridge Server.
- **Login Credentials:** Default username is admin and default password is dpstelecom.



Bridge Id	IP	Description	Login	Password
01	192.168.0.140	Field Tech Bridge (Main Server Closet)	admin	dpstelecom
02	192.168.0.141	NOC Bridge (Main Server Closet)	admin	dpstelecom
03	192.168.1.200	Station Server	admin	dpstelecom
04	192.168.1.200	Station Server	admin	dpstelecom
05	192.168.1.200	Station Server	admin	dpstelecom
06	192.168.1.200	Station Server	admin	dpstelecom
07	192.168.1.200	Station Server	admin	dpstelecom
08	192.168.1.200	Station Server	admin	dpstelecom

If you have additional Bridge Servers, you may use the other rows to configure them as well. Up to 8 Bridge Servers may be defined in a single Order Wire configuration.

3. Once you are satisfied with your configuration update, you must **write the configuration to your VoIP Order Wire stations** for it to take effect. The simplest method is to click "Connect" >> "Write to all devices". This will write the configuration to all devices defined in the "Directory" tab of Orderwire Config.

Your Bridge Server configuration has now been saved to your Order Wire stations (as listed in the "Directory" tab). You are now ready to make your first conference call, as described in the next section.

10.3 Dial into the Bridge Server from Order Wire stations

After giving your Bridge Server an IP address and adding it to the configuration of your Order Wire stations, you're now ready to make your first conference call using the Bridge Server.

1. **Pick up the handset** of a VoIP Order Wire station.
2. **Dial '3'** to "join a conference." (Pressing '#' instead will list the various menu options, including "To join a conference, press '3'". Experienced conference users, however, will simply press '3' directly after picking up the handset). After dialing '3', you will be prompted to "Enter 2-digit conference ID."
3. **Dial the 2-digit "Bridge Id"** (01-08) of your desired Bridge Server. You defined this in the Order Wire configuration during the previous setup section.

You will now be connected to the conference, but you will be the only person on the call. If you wish, you may dial into the call from another Order Wire station (use the same 3 steps above) to test the conference call functionality.

Users on a conference call will hear an **automatic verbal announcement when a user enters or leaves the conference call.** The joining user will also hear the verbal announcement of his/her own entry into the room.

NOTE: A single VoIP Bridge Server will support **up to 10 simultaneous users. Any user who attempts to join a conference call that is already full will hear an error prompt.**

11 How to Upgrade Firmware Via LAN

Type the VoIP Bridge Server's assigned IP address into the address bar of your web browser followed by **/multiload** (http://yourIPaddress/multiload), and press Enter.

At the login prompt, use the following username and password (NOTE: The username and password cannot be modified):
Username: admin
Password: dpstelecom

Once logged in, you have the option to browse for a firmware file (*.bnd) and write it to the VoIP Bridge Server.

12 Frequently Asked Questions

Here are answers to some common questions from VoIP Bridge Server users. The latest FAQs can be found on the DPS Telecom support web page, **http://www.dpstele.com/support/**

If you have a question about the VoIP Bridge Server, please call DPS Telecom at **(559) 454-1600** or e-mail us at **support@dpstele.com**

12.1 General FAQs

Q. How do I telnet to the VoIP Bridge Server?

A. You must use **Port 2002** to connect to the VoIP Bridge Server. Configure your Telnet client to connect using TCP/IP (**not** "Telnet," or any other port options). For connection information, enter the IP address of the VoIP Bridge Server and Port 2002. For example, to connect to the VoIP Bridge Server using the standard Windows Telnet client, click Start, click Run, and type "telnet <VoIP Bridge Server IP address> 2002."

Q. How do I connect my VoIP Bridge Server to the LAN?

A. Remember that the only purpose of the VoIP Bridge Server's web interface is to update firmware. To connect your VoIP Bridge Server to your LAN, you need to configure the unit IP address, the subnet mask, and the default gateway via the TTY interface (using Telnet). A sample configuration could look like this:
Unit Address: 192.168.1.100
subnet mask: 255.255.255.0
Default Gateway: 192.168.1.1
Save your changes by writing to NVRAM and reboot. Any change to the unit's IP configuration requires a reboot.

Q. When I connect to the VoIP Bridge Server through the craft port on the front panel it either doesn't work right or it doesn't work at all. What's going on?

A. Make sure your using the right COM port settings. Your COM port settings should read:
Bits per second: 9600 (9600 baud)
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None
Important! Flow control **must** be set to **none**. Flow control normally defaults to hardware in most terminal programs, and this will not work correctly with the VoIP Bridge Server.

Q. I'm unsure if the voltage of my power supply is within the specified range. How to I test the voltage?

A. Connect the black common lead of a voltmeter to the ground terminal of the battery. Connect the red lead of the voltmeter to the battery's VDC terminal. The voltmeter should read a value that is within the range listed in the "Specifications" section of this manual. The acceptable voltage range is also commonly listed on the back panel of the unit near the power connector.

13 Technical Support

DPS Telecom products are backed by our courteous, friendly Technical Support representatives, who will give you the best in fast and accurate customer service. To help us help you better, please take the following steps before calling Technical Support:

1. Check the DPS Telecom website.
You will find answers to many common questions on the DPS Telecom website, at **http://www.dpstele.com/support/**. Look here first for a fast solution to your problem.

2. Prepare relevant information.
Having important information about your DPS Telecom product in hand when you call will greatly reduce the time it takes to answer your questions. If you do not have all of the information when you call, our Technical Support representatives can assist you in gathering it. Please write the information down for easy access. Please have your user manual and hardware serial number ready.

3. Have access to troubled equipment.
Please be at or near your equipment when you call DPS Telecom Technical Support. This will help us solve your problem more efficiently.

4. Call during Customer Support hours.
Customer support hours are Monday through Friday, from 7 A.M. to 6 P.M., Pacific time. The DPS Telecom Technical Support phone number is **(559) 454-1600**.

Emergency Assistance: *Emergency assistance is available 24 hours a day, 7 days a week. For emergency assistance after hours, allow the phone to ring until it is answered with a paging message. You will be asked to enter your phone number. An on-call technical support representative will return your call as soon as possible.*

14 End User License Agreement

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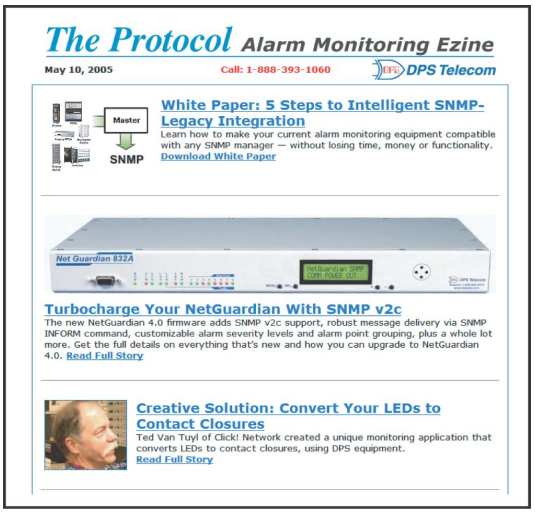
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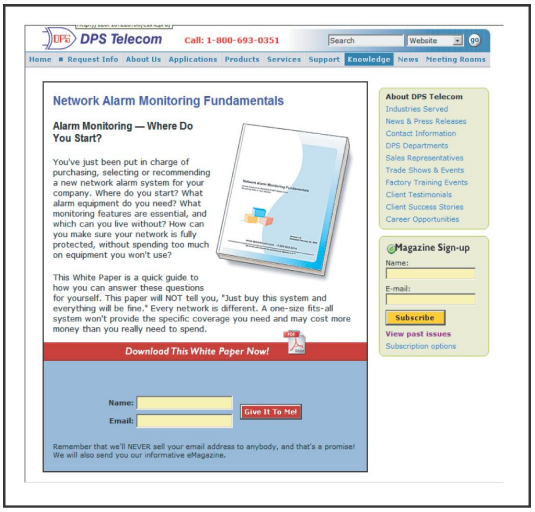
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